

1,2 = Propylene Glycol

1,3 = TM Glycol

WE CLAIM:

Good to do  
Date

Suggest  
Concise

1. An anti freeze/coolant for internal combustion engines which comprises: 1,3 propanediol 97-98% by volume, 95 to 97 percent; nitrite, 0.50 to 1.5%; nitrate, 0.30 to 1.5%; borate, 0.25 to 1.25%; mercaptobenzothiazole, 0.25 to 1.0%; tolyltriazole, 0.30 to 1.1%; benzyltriazole, 0.00 to 1.0%; silicate, 0.25 to 3.0%; antifoam, 0.05 to 0.3%; silicate stabilizer, 0.10 to 1.9% and dye, 0.00 to 0.02%.

2. An anti freeze/coolant for internal combustion engines which comprises: 1,3 propanediol 97-98% by volume, 95 to 97 percent; nitrite, 0.50 to 1.50%; nitrate, 0.30 to 1.50%; phosphate, 0.50 to 1.60%; mercaptobenzothiazole, 0.25 to 1.00%; tolyltriazole, 0.30 to 1.10%; benzyltriazole, 0.00 to 1.00%; silicate, 0.25 to 3.00%; molybdate, 0.50 to 1.30%; antifoam, 0.05 to 0.10%, and dye 0.00 to 0.02%.

3. An anti freeze/coolant for internal combustion engines which comprises: 1,3-propanediol is 93 to 95% by weight, 2-ethylhexanoic acid is 4.0 to 6.0 %, sebacic acid is 0 to 1.5%, sodium tolyltriazole is 0.3 to 1.1%, antifoam is 0.05 to 0.3% and dye is 0 to 0.02%.

4. An anti freeze/coolant for internal combustion engines which comprises: 1,3-propanediol is 93 to 95% by weight, sodium nitrite is 0.5 to 1.5%, 2-ethylhexanoic acid is 4.0 to 6.0 %, sebacic acid is 0 to 1.5%, sodium tolyltriazole is 0.3 to 1.1%, antifoam is 0.05 to 0.3% and dye is 0 to 0.02%.

See 10/074,834

5. An anti freeze/coolant for fuel cell vehicles which comprises 1,3-propanediol.

6. A method for temperature protection of fuel cells used in fuel cell vehicles which comprises using 1,3-propane diol in the fuel cell as an antifreeze/coolant.

7. A method for making an antifreeze/coolant composition for internal combustion and fuel cell engines comprising 1,3 propanediol 97-98% by volume, 95 to 97 percent; nitrite, 0.50 to 1.50%; nitrate, 0.30 to 1.50%; phosphate, 0.50 to 1.60%; mercaptobenzothiazole, 0.25 to 1.00%; tolyltriazole, 0.30 to 1.10%; benzyltriazole, 0.00 to 1.00%; silicate, 0.25 to 3.00%; molybdate, 0.50 to 1.30%; antifoam, 0.05 to 0.10%, and dye 0.00 to 0.02%, which comprises first blending the nitrite, nitrate, phosphate, mercaptobenzothiazol, tolyl triazole, benzyl triazole, silicate, molybdate, antifoam, and optional dye in water and then adding 1,3-propane diol to the blend.